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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-----------------------|------------------|
| 10/774,775 | 02/09/2004 | Yun-Hwan Kim | 8836-217 (IB12294-US) | 8837 |
| 22150 | 7590 | 09/22/2006 | | EXAMINER |
| F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797 | | | KO, DANIEL BOKMIN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2189 | |

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/774,775 | KIM ET AL. | |
| | Examiner | Art Unit | |
| | Daniel B. Ko | 2189 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 30 June 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-25 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

This action is responsive to the Amendment filed on 6/30/2006.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 21 and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The added material which is not supported by the original disclosure is as follows: the X-data field and the Y-data field overlap, and wherein an area of overlap is the microprocessor data field.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chauvel et al. (US Patent 6,369,855 B1), hereinafter simply Chauvel in view of Sussman et al. (US Patent 5,686,960), hereinafter simply Sussman.

Regarding claim 1, 5, 9 and 17, Chauvel teaches a computer system comprising:
a system bus (column 6, lines 10-11; column 9, lines 30-32);
a host processor for receiving, decoding, and executing an instruction (column 5, lines 26-28);
an arbiter for controlling priorities for system bus access (column 21, lines 14-19);

a data processing unit for performing a digital signal processing operation subject to the host processor (column 23, lines 17-19); and

an external memory for storing data managed by the data processing unit (column 9, lines 60-66);

wherein the data processing unit comprises:

a microprocessor for fetching and executing an instruction (column 5, lines 26-28);

a coprocessor for storing data managed by the microprocessor (column 12, lines 29-31);

a microprocessor data cache for storing data managed by the microprocessor (A data cache managed by microprocessor is an obvious feature that is well known in the computer art).

Chauvel fails to teach an X-data cache and a Y-data cache. Sussman teaches an X-data cache and a Y-data cache (Fig. 30, X cache 608, Y cache 614; column 33, lines 28-34). At the time of invention it would have been obvious to a person of ordinary skill in the art to combine the Chauvel with Sussman. The motivation for doing so would have been an efficient processing of data such as an image or video by implementing Sussman's X cache memory and Y data cache memory, because accessing from cache is faster than accessing from the main memory.

Regarding claims 2, 16, 14 and 22, Chauvel teaches a data processing device, wherein the microprocessor conducts arithmetic operations for integers and floating points, and Boolean functions (this is an obvious feature that is well known in the art).

Regarding claims 3, 7, 15 and 23, Chauvel teaches a data processing device, wherein the coprocessor executes a digital signal processor function operable with at least one of video, audio, video capture and play-back, telephone communication, voice identification and synthesis, and multimedia communication (column 5, lines 23-39; column 34, lines 58-67; column 35, lines 15-42).

Regarding claims 4, 8, 16 and 24, Chauvel teaches a data processing device, wherein the digital signal processor function is micro-coded with at least one of finite impulse response and infinite impulse response filters, a Fourier transform, a correlation function, a matrix multiplication, and a Taylor series function (column 3, lines 57-67; column 4, lines 1-59; Chauvel discloses a matrices).

Regarding claims 10 and 18, Chauvel teaches a computer system, further comprising a slave in accordance with a need of a user (column 16, lines 28-33; column 60, lines 16-29).

Regarding claims 11 and 19, Chauvel teaches computer system, wherein the slave comprises at least one of a storage extension module, a video control extension

module, a multimedia extension module, and a communication extension module (column 5, lines 23-39; column 34, lines 58-67; column 34, lines 15-42; column 60, lines 16-29).

Regarding claims 12 and 20, Chauvel teaches a computer system, further comprising a decoder for addressing the data processing unit and the slave (column 5, lines 40-43).

Regarding claim 13, Chauvel and Sussman teaches a computer system, wherein the external memory comprises:

a microprocessor data field for storing data to and/or from the microprocessor data cache (A data cache managed by microprocessor is an obvious feature that is well known in the computer art);

an X-data field for storing to and/or from the X-data cache; and

a Y-data field for storing to and/or from the Y-data cache (Fig. 30, X cache 608, Y cache 614; column 33, lines 28-34).

Response to Arguments

Applicant's arguments filed 6/30/2006 have been fully considered but they are not persuasive.

Claims 1, 5, 9, and 17

Regarding claims 1, 5, 9, and 17, on page 9, second paragraph, Applicant argues that "the combined teaching of Chauvel and Sussman fail to teach suggest a coprocessor, much less "an X-data cache for storing a first data group managed by the coprocessor; and a Y-data cache for storing a second data group managed by the coprocessor".

In response, it is noted that Chauvel teaches a coprocessor (column 5, lines 33-39). Combining Chauvel's coprocessors with Sussman's X-data cache and Y-data cache meets the claim limitations of claims 1, 5, 9, and 17.

Claims 21 and 15

Regarding amended claims 21 and 25, on page 10, second paragraph, Applicant argues that "Chauvel and Sussman, taken in combination or individually, fail to teach or suggest "the X-data field and the Y-data field overlap, and wherein an area of overlap is the microprocessor data field".

In response, the amended claims 21 and 25 introduce new matter. U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is

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as follows: the X-data field and the Y-data field overlap, and wherein an area of overlap is the microprocessor data field.

Applicant is required to cancel the new matter in the reply to this Office Action.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel B. Ko whose telephone number is 571-272-8194.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald G. Bragdon can be reached on 571-272-4204. The fax phone number for the organization where this application or proceeding is assigned is 703-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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